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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,078	02/25/2004	Akihiro Kamiya	Q79952	8938

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EXAMINER	
ALUNKAL, THOMAS D	
ART UNIT	PAPER NUMBER
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/785,078	KAMIYA, AKIHIRO	
	Examiner	Art Unit	
	Thomas D. Alunkal	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takasaki et al (hereafter Takasaki) (US PgPub 2002/0006092) and Kamiyama (US 6,236,032).

Regarding claim 1, Takasaki discloses a tracking servo operating method (see Title) comprising: applying a beam spot on an optical disk on which a track is formed (Paragraph 43, lines 1-2), receiving feedback light from said optical disk by a light receiving unit (Paragraph 43, lines 8-9), which is equipped with a multi-divided photodetector comprising a first photo-detecting portion and a second photo-detecting portion being mounted in a manner so as to be divided right and left relative to a circumferential direction of said optical disk, receive feedback light from said optical disk (Figure 1, Element a), and controlling an actuator through a driver so that a servo operation in which said beam spot tracks said track is performed according to an output from said light receiving unit (A driving actuator is an inherent feature of a tracking servo system used in an optical pickup device (Paragraph 24, lines 1-2.)) wherein control is so exerted that a high frequency differential signal is produced by calculating a difference between a first high frequency signal obtained by having said first photo-detecting

portion receive first feedback light from said optical disk and a second high frequency signal obtained by having said second photo-detecting portion receive second feedback light from said optical disk (Figure 1, Element a and Paragraph 8, equation MPP). Takasaki does not disclose after a tracking error signal has been produced based on, at least, the produced high frequency differential signal, the produced tracking error signal is binarized and a tracking error edge signal indicating an edge of rising and falling of the binarized tracking error signal is extracted and that said first and second high frequency signals are binarized and, when the binarized first and second high frequency signals are at a specified same level, an operation of pulling in a tracking servo is performed in response to said tracking error edge signal. In the same field of endeavor, Kamiyama discloses a tracking error signal which is based on at least wherein the produced tracking error signal is binarized (Column 3, lines 9-13) and a tracking error edge signal indicating an edge of rising and falling of the binarized tracking error signal is extracted and that said first and second high frequency signals are binarized and, when the binarized first and second high frequency signals are at a specified same level, an operation of pulling in a tracking servo is performed in response to said tracking error edge signal (Figure 4, Element 82, Figure 6, Edge Detector Output, and Column 3, lines 46-50).

One of ordinary skill in the art at the time of the applicant's invention would have found it obvious to provide the tracking servo method of Takasaki with the operation of pulling in tracking servo of Kamiyama, motivation being to reduce the effects of disc

defects and enable secure and prompt pulling in of a tracking servo loop (Column 1, lines 58-61).

Regarding claim 2, Kamiyama discloses wherein setting is made so that said tracking error signal becomes 0 (zero) when said beam spot is positioned at a center of said track (Column 1, lines 18-26).

Regarding claim 3, Kamiyama discloses wherein setting is made so that said tracking error edge signal is extracted when said beam spot has reached either of a center of said track or a center of a region between the two tracks adjacent to each other (Column 1, lines 18-26).

Regarding claim 4, Kamiyama discloses wherein control is exerted so that, after a band of each of said first and second high frequency signals has been filtered (Figure 1, Element 6, and Column 3, lines 18-19), the filtered signals are binarized and, when both the binarized first and second high frequency signals are at a low level, an operation of pulling in a tracking servo is performed in response to said tracking error edge signal (Figure 4, Element 82, Figure 6, Edge Detector Output, and Column 3, lines 46-50).

Regarding claim 5, Takasaki discloses wherein each of said first and second photo-detecting portions each are further divided into a front photo-detecting portion and a rear photo-detecting portion along the circumference direction of said track (Figure 1, Element a), and wherein said first and second high frequency signals each are obtained by adding a front output signal from said front photo-detecting portion and a rear output signal from said rear photo-detecting portion (Paragraph 8, Equation MPP).

Regarding claim 6, Kamiyama discloses wherein movement of said beam spot by said actuator is accomplished by movement of an objective lens in a light source (Column 5, line 66-Column 6, line 2. Note, a read and/or write beam is irradiated through the objective lens in an optical pickup).

Regarding claim 7, Takasaki discloses wherein said light receiving unit further comprises a first sub-photodetector mounted in a position being isolated left by 1/2 pitches of said track in a direction of crossing said track from a center of said multi-divided photodetector and comprising a first left photo-detecting portion and a first right photo-detecting portion mounted in a manner so as to be divided right and left relative to a circumferential direction of said optical disk (Figure 1, Element b(left) which denotes one sub-beam detector, and Figure 7, which illustrates sub-beams being displaced by ½ pitches in reference to the main beam) and a second sub-photodetector mounted in a position being isolated right by 1/2 pitches of said track in a direction of crossing said track from a center of said multi-divided photodetector and comprising a second left photo-detecting portion and a second right photo-detecting portion mounted in a manner so as to be divided right and left relative to the circumferential direction of said optical disk, and hereby being so configured as to receive feedback light of a sub-beam from said optical disk (Figure 1, Element b(left) which denotes one sub-beam detector, and Figure 7, which illustrates sub-beams being displaced by ½ pitches in reference to the main beam), said sub-beam being obtained by dividing a beam output from a light source (Figure 8, Element 3) and to obtain a first detecting signal by adding signals output from said first and second left photo-detecting portions in said first and second

sub-photodetectors and a second detecting signal by adding signals output from said first and second right photo-detecting portions in said first and second sub-photodetectors, and to produce a sub-differential signal by calculating a difference between the obtained first detecting signal and the obtained second detecting signal , and then to produce said tracking error signal based on a difference between the produced sub-differential signal and said high frequency differential signal (Paragraph 8, Equation DPP).

Regarding claim 8, this claim contains limitations similar to those in claims 5 and 7, and is rejected over the same grounds.

Regarding the apparatus and device claims of claims 9-18, these claims simply recite similar limitations to the method claims of claims 1-8, and are rejected over the same grounds.

Conclusions

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Alunkal whose telephone number is (571)270-1127. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571)272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas Alunkal

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William Korzuch

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